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# The Mining Journal

Vol. 252. No. 6462.

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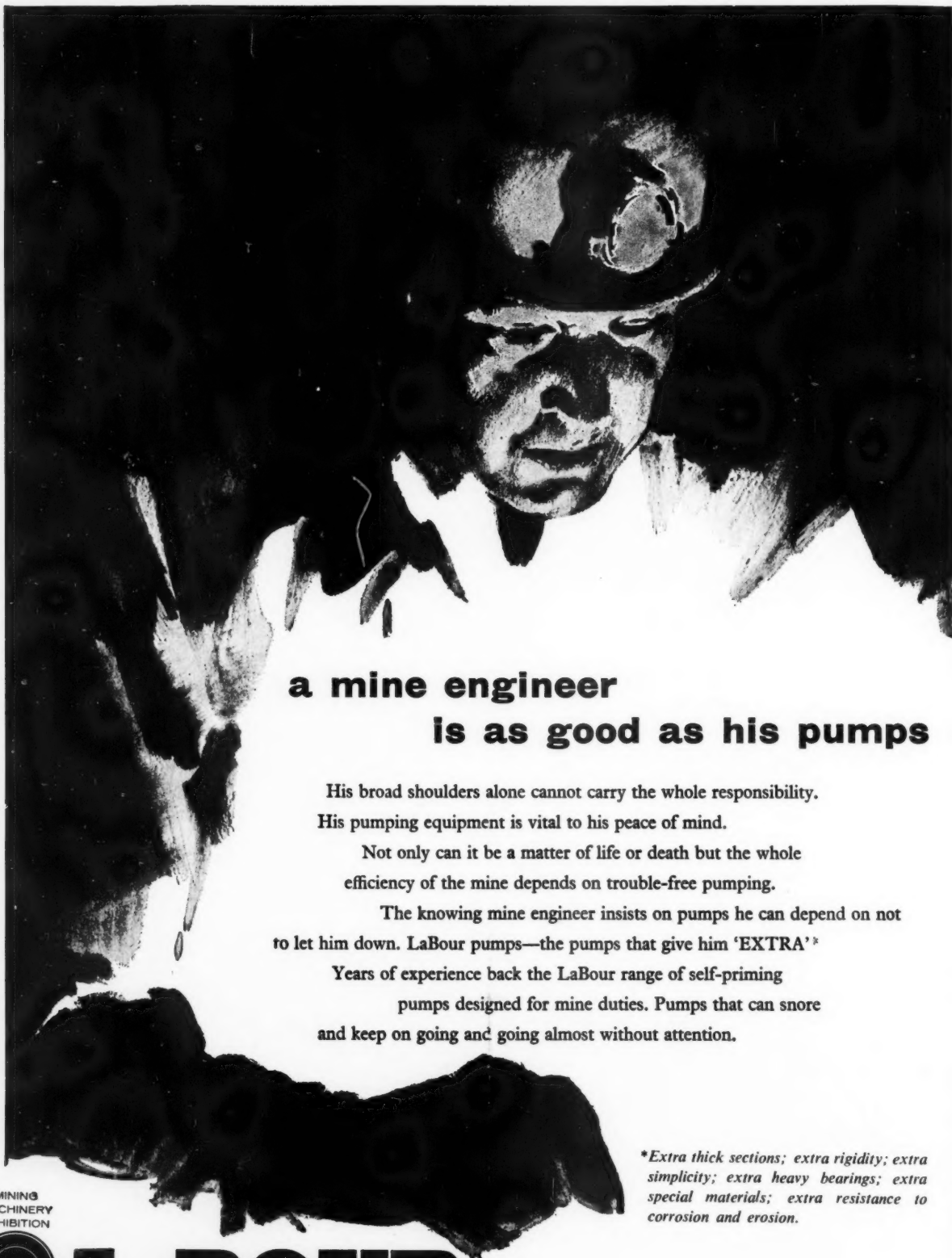
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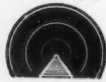
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# The Mining Journal

London, June 26, 1959

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Vol. 252

No. 6462

Established 1835

## DISPUTE IN THE PRINTING INDUSTRY

The dispute in the printing industry, the duration of which at present cannot be foreseen, is severely hampering the production of all British newspapers and periodicals, other than national daily and Sunday newspapers. In consequence, the size of *The Mining Journal* must, unfortunately, be substantially reduced until conditions are back to normal.

Published each Friday by

THE MINING JOURNAL LTD.

15 WILSON STREET,  
LONDON, E.C.2

Telegraphic  
Tutwork London

Telephone  
MONarch 2567 (3 lines)

Annual Subscription £3 5s. Single copy ninepence

## The Dollar and the Price of Gold

FOR the first time since 1940 America's gold stocks will fall below \$20,000,000,000, when the U.S. Treasury hands over nearly \$344,000,000 in gold to the International Monetary Fund. This payment, which is to be made in a few day's time, represents part of the increased U.S. subscription to the International Fund.

It is tempting to regard this new post-war "low" in the U.S. monetary stock as a further pointer to brightening prospects for the long overdue increase in the dollar price of gold. The coming payment to the I.M.F. will cut America's gold reserve to about \$19,800,000,000, which compares with a peak of about \$24,500,000,000 in 1949. In the past ten years the U.S. gold stock has been steadily declining. The largest drop in any one year occurred in 1958, when the outflow amounted to a record \$2,300,000,000. Some U.S. Government officials have said that they expect a further outflow of as much as perhaps \$2,000,000,000 this year. This, of course, reflects an extremely large balance of payments deficit, which amounted to \$927,000,000 in the first quarter of 1959 (on a seasonally adjusted basis), but was still lower than in any quarter of last year.

A year or so ago there appeared to be a growing impression, at least among some investors, that Washington was becoming more favourably disposed to the idea of an agreement with other commercial countries to raise the international price of gold, leaving existing exchange relationships unaltered. Such a development, it was constantly pointed out by leading economists, would automatically strengthen the dollar. Washington's reluctance to take this course was widely attributed to instinctive distaste for a measure from which Russia, with its reputedly immense gold stocks, would be among the greatest beneficiaries.

Latterly world opinion has swung increasingly to the belief that, if the U.S. authorities did decide to make any change in the gold price, the most likely development would be unilateral action to raise the dollar price of gold, thus effectively devaluing the dollar in terms of other currencies. This accounts for the increased emphasis on purchases of leading European currencies (including, of course, sterling) in recent speculation against the dollar, though it is significant that, in London, the dollar price of gold still remains close to the Bank of England's selling figure of around \$35.13 per oz.

It also accounts for such recent developments as the establishment of facilities on the Toronto Stock Exchange for dealings in gold bars; Samuel Montagu's scheme for selling transferable certificates against gold held either in London or Toronto; and South Africa's so-called "gold brick" sales which have drawn off quite a bit of American funk money which might otherwise have gone towards accelerating, yet more rapidly, this year's rise in Kaffir and other gold share prices.

America's large balance of payments deficit is of course primarily a reflection of her large and sustained foreign aid expenditure (both civil and military) rather than any major imbalance in physical trade. At the same time, the continually rising wage and

price spiral within the U.S. has reached a point at which many dollar goods are being priced out of world markets. Indeed, one form which the flight from the dollar is taking is the establishment of overseas subsidiaries or the signing of licensing arrangements whereby American goods for foreign markets can be competitively produced in other countries. Even in their own home market American manufacturers are experiencing increasing competition from lower-priced foreign goods.

The present weakness of the dollar is essentially one of sentiment based partly on whether Washington intends to arrest her dollar outflow by foreign aid cutbacks and, if not, whether she will be compelled to suspend free gold dealings. Partly it is based on uncertainty as to whether America's growing uncompetitiveness in foreign markets outside of transactions based on tied aid may assume sufficiently great political importance to increase the pressure on Washington for a devaluation of the dollar.

There is certainly no question at the present time that America's gold stocks are approaching a dangerous level. Even after the coming payment to the I.M.F. they will still amount to some \$19,800,000,000, whereas only \$11,900,000,000 is needed as legal backing for the note and deposit liabilities of the Federal Reserve Bank. At end-1958, assets held in the U.S. by foreign banks and governments amounted to \$12,200,000,000, besides which short-term dollar assets totalling some \$6,000,000,000 are held by foreign firms and individuals. If this drain is allowed to go on, the U.S. might eventually be compelled to place restrictions on the outward flow of gold—a contingency which at present seems remote. This would immediately lead to a rise in the dollar price of gold outside the U.S., and for all practical purposes would be equivalent to a straightforward devaluation of the dollar in terms of gold.

Neither of these courses is likely to commend itself to Washington, more especially when so much could be done to staunch the gold drain by such expedients as suspending foreign aid and cutting down foreign investment. Meanwhile the Eisenhower Administration is clearly assured of widespread support in its efforts to defend the dollar at its present parity by tightening credit and achieving a balanced budget.

Whichever way dollar devaluation comes about, if it does, the effect of this on gold mine operators outside of the U.S. will depend on the extent to which other countries counter this move by devaluing their own currencies.

All in all, the balance of probabilities appears to be against any increase in the gold price, whether by international agreement or unilaterally by the U.S., in the immediate future, though a further drop of \$2,000,000,000 in the gold stock at Fort Knox might well cause Washington to have second thoughts.

Sooner or later an increase in the price of gold must surely come, but there seems unfortunately little reason to anticipate it during the current year.

### MALAYAN CHINESE MINERS CONTEMPLATING BARTER

Kuala Lumpur Chinese-language newspapers report that the All-Malaya Chinese Mining Association has concluded arrangements with American interests for a barter deal of Malayan-produced tin for United States produced agricultural products, and that the Association has requested its members to notify the amount of tin they each wish to offer for barter.

The membership of the Association consists almost entirely of Chinese gravel-pump mine owners, who in the

aggregate produce around 38 per cent of Malaya's output of tin concentrates.

No details of the proposed deal are given, neither is it stated if such a deal is acceptable by the U.S. Credit Commodities Corporation. Presumably, if offers of a sufficient quantity of tin to make the deal worth while are obtained the approval of the International Tin Council will be sought at its next meeting on September 1.

The announcement indicates that the smaller tin producers of Malaya are finding the financial strain of continued restricted production, coupled with buffer stock contributions, so severe that they are now compelled to take a different view than was expressed three months ago, when it was publicly stated that the tin miners of the Federation of Malaya were not interested in the barter proposals because they feared that the loss would be too great, taking into account the amount that could be expected to be realized from the sale of the agricultural products receivable in exchange.

### STANDARDIZATION IN THE MINING INDUSTRY

ISO/TC 82, the new committee of the International Organization for Standardization, which will be concerned with all aspects of mining, met for the first time at the end of April in Essen. The secretariat is held by Germany. The meeting was attended by more than forty delegates from ten countries, including the United Kingdom.

The scope of the work was agreed as: (1) to establish agreement on specifications relating to machinery and equipment used in open-cast and underground mining for the extraction of solid mineral substances, but excluding the preparation and processing of the minerals; (2) to unify practice in the presentation of plans and drawings used in mine surveying; (3) to unify methods of calculation of mineral reserves and to unify terminology, the two latter tasks to be carried out in close collaboration with national and international organizations interested in this work.

Two working groups were established and began work. One is concerned with geological and petrographic symbols and the other, of which the United Kingdom holds the secretariat, will deal with components of conveyors. The work on conveyors will concern various main components, the first task being a draft recommendation for high-tensile (round link) steel chains.

### OIL IN EUROPE

A Joint Committee of the High Authority and the six Community countries has recently evolved a joint policy for all forms of energy, and in a published report, the Joint Committee forecast increased reliance on oil and greater use of natural gas, resulting in increased difficulty in the coal industries of the Community. This deterioration in outlook for coal will be pronounced as soon as means are found for the transport of natural gas from the Sahara to Europe. Such transportation is a practicable proposition whether by pipelines or as frozen gas. Within the next twenty years it is estimated that the fuel requirements of the six countries will be entirely covered from indigenous resources or from the Sahara, and these latter deposits will remove the dependence of the Pool countries on Middle East oil.

Not only will this change in fuel pattern affect indigenous coal industries but it will also strike a severe blow at U.S. coal operators who over the past few years have enjoyed a considerable market in Europe.

# Exploration and Development of Mineral Resources in French Equatorial Africa

**I**N 1956 the Department of Mines and Geology of French Equatorial Africa sent 18 missions into the field. A report on the number of missions sent out in 1958 is not available; however, many of the teams sent out in 1956 continued working and overall activity in 1957 apparently was comparable in scale and scope.

The 1956 missions covered a total of 450,000 square kilometres, of which 435,000 kilometres were covered with general reconnaissance studies. Detailed geological surveying and prospecting covered an area of 15,000 square kilometres. This coverage was made possible by developing new techniques of moving and supplying the teams. Much of the area surveyed and prospected is uninhabited jungle-covered mountains. These areas are almost impenetrable and can be reached only by clearing paths with machetes.

After several methods had proved unsuccessful, a new type mission was developed. This method consisted essentially of sending several teams into an area and supplying them by parachute from planes. Radio transmitters and receivers permitted daily contact between teams in the missions and with the Chief of the Service in Brazzaville.

## Missions in the Field

In 1956 ten missions worked in the "Southern Geologic Section" (Gaboon and Middle Congo), the three principal ones being: East Port Gentil, Iron, and Kouilou.

In the "Northern Geologic Section" (Oubangui-Chari and Tchad) there were seven missions in the field:

*The Mission East Port Gentil* during the short dry season at the end of 1955 to mid-April, followed up geological reconnaissance with general prospecting of the East Port Gentil fault in the Ogooué Basin (Boué and M'Djolé districts) and in the Ikoy (Ikoye) Basin north of Etéké. In the Ogooué Basin, alluvial prospecting revealed a few traces of gold without economic interest and a single weak indication of columbite-tantalite. Indications of manganese were found north of M'Djolé. In the Ikoy Basin, numerous signs of cassiterite, tungsten, and columbite-tantalite were found in the area north of Etéké.

During the long dry season (May to November 1956) this mission had its headquarters at Etéké. Its principal objective was to estimate from the air the potential size of the columbite-tantalite and cassiterite occurrences discovered by the preliminary mission during the short dry season.

*The Mission Iron*, which lasted a month and a half, continued a study of the Djaddié-Djouah Massive begun in September 1955.

Iron ore was found in all prospected zones of the Djaddié-Djouah Massive. Although it was not possible to make an estimate of the ore reserve, tonnages may be important. Iron mineralization was found on many of the crests of the Invodo Massive.

The mission set up to study the *Kouilou Dam Project* then undertook the first intensive geological studies of the project in 1956.

The programme of the *Mission West Ouanda-Djalle* (December 1955 to April 1956) included geological study and alluvial reconnaissance prospecting of the West Ouanda-

Djalle fault and completion of the survey begun during the 1955 mission. Reconnaissance of alluvials in the area did not give interesting results. Cassiterite was recognized in only one of 77 pits sunk.

The work of the *Mission West Fort Grampel* included the continuation of the geological study and alluvial reconnaissance prospecting of the West Fort Grampel fault. Started in January, it was finished in July 1956. Along the itineraries, a rapid reconnaissance was made while proceeding with detailed prospecting of certain favourable zones. A total of 246 pits were sunk. Unimportant indications of chromite and gold were found. Ilmenite sands containing more than 10 kilograms of ilmenite per cubic metre were found in several places.

*The Mission Borkou-Ennedi-Tibesti* covered 350,000 square kilometres with general geological reconnaissance. This mission also made aerial photographs of two-thirds of the territory explored. Its work included surveying and prospecting details of the Yedri and d'Orda Oudengui granite massive. Numerous indications of mineralization were found by the mission.

*This report by Joseph C. Arundale, American Consul in Elisabethville, summarizes recent developments in the exploration and development of French West Africa's mineral resources by the French Government and also by private industry, both French and foreign. It has been released by the U.S. Department of the Interior as Mineral Trade Notes, Supplement No. 54.*

*The Mission Diamond* studied the diamond-bearing deposits of West Oubangui-Chari and of the Carnot Sandstone and outlined favourable zones. These will be the subject of further research.

## Bureau Minier de la France d'Outre-Mer

The Mining Bureau of Overseas France continued its search for copper-lead-zinc in the Niari Valley (lower Middle Congo) during 1957. Aerial photography and geological and geochemical studies were under way in several parts of the valley. These activities were supplemented by drilling, trenching, and cross-cutting. Several mineralized areas were found and will be examined further.

The Bureau continued its investigation of the area west of Tchibanga along the Nyanga River. Five deep drill holes and a 120-metre trench were completed in 1957. An airborne magnetometer survey revealed 2 anomalies, which were subsequently tested by two 200-metre drill holes. These holes did not find magnetite in "exploitable quantities", but did intersect "a thickness of several dozen metres of iron ore which can be enriched by treatment". Further work by this mission has been postponed awaiting the results of tests on concentration of the mineral.

The Bureau is actively surveying and testing the river gravels and alluvial flats throughout southern F.E.A. for both diamonds and gold, and it is halfway through a 3-year

exploration concession in the Middle Congo for lead-zinc-copper and radioactives. The concession covers 6,700 square kilometres.

Following the geological reconnaissance conducted by the Direction des Mines et de la Géologie from 1954 to 1958, which disclosed indications of tin, tungsten, and radioactives in the far north of Tchad in Tibesti, the Mining Bureau of Overseas France obtained (in July 1957) several prospecting permits in that region.

The Mining Bureau, the Bureau of Organization of African Industrial Ensembles (B.I.A.), and the Atomic Energy Commission (C.E.A.) have reached a syndication agreement. The syndicate will have as an objective the study of all mineralization in the districts of Borkou, Ennedi, and Tibesti. The Mining Bureau will manage the syndicate and will have 20 per cent of the shares. C.E.A. will have 20 per cent of the shares and B.I.A. will hold 60 per cent. Capitalization will be at 75,000,000 metropolitan francs.

### Other Programmes

According to the Director of Mining Research of the Atomic Study Board, the discovery of the uranium deposit at Moanda (in Gaboon) was the result of 10 years of systematic research. Primary prospecting operations which began in 1947, were centred around the valley of the Niari, where signs of abnormal radioactivity and the presence of uranium minerals had been found. Prospecting of the Niari Valley for radioactive minerals had been abandoned, however, after several years of search. It was continued soon afterwards in the region of Ekété gold mines in Gaboon, then in the area of Franceville, where the deposit of Moanda was discovered in mid-1957 by a group of 3 prospectors.

Beginning in mid-1957, low-altitude aerial prospecting was undertaken over the plateau on which the Moanda deposit was found. The Atomic Study Board, working with its own teams but with rented planes, is flying a tight pattern over an area about 100 by 200 kilometres, and will later extend this type of prospecting to a larger area on a wider cross ruling. Search for uranium ore also will be extended to the eastern part of Oubangui-Chari.

### Prospecting by Commercial Interests

**Iron:** Prospecting and examination of the iron ore in the Makolou-Mékambo Region have been vigorously undertaken by the "study syndicate" formed in 1955 by Bethlehem Steel and French interests. Recent work in the Belinga Massive indicates that reserves may be superior to that of the Boka-Boka Massive, which is estimated at more than 200,000,000 tonnes with an average tenor of 63 per cent.

The "study syndicate" will be transformed into a new Mékambo Iron Mines Co., according to recent information. French interests (Bureau Minier de la F.O.M., Banque de Paris, Cofimer, Suez, etc.) will take 34 per cent of the company; other European interests will take 16 per cent (German 9 per cent, Italian 5 per cent, Dutch 1 per cent, and Belgian 1 per cent). Bethlehem Steel will have 50 per cent of the new exploitation company.

**Rock salt, Potash, Phosphate:** Rock salt and potash, discovered along the lower Ogooué during petroleum prospecting, was to be further explored in 1958. The Syndicate for Potash Research in Gaboon will conduct geophysical work and drilling in the area of Azingo (between Lambarene and Port Gentil).

Early in 1957 the Société des Phosphates du Congo suspended its prospecting of phosphate deposits in the coastal basin of Middle Congo pending a decision on the Kouilou Dam and power project. Prospecting in the zone between

Mayoumba and the sea and from Mayoumba to the Portuguese Cabinda established the existence of a narrow phosphate formation, about 150 kilometres in length. The most interesting deposit is between the railway and the Loémé and contains about 3,500,000 tonnes of reserves.

Several of the mineral deposits found and/or investigated during recent months in French Equatorial Africa have advanced beyond the investigation stage to the development stage.

A wolframite deposit at Yédri, found and investigated by a mission of the Department of Mines and Geology, will be mined by the Mining Bureau of Overseas France. It will be an open-pit operation. Production in 1958 is expected to total about 100 tonnes.

It has been officially announced that the deposit of uranium found near the village of Moanda, north-west of Mékambo, is sufficiently large (at least 100 tons of uranium metal) and rich to justify development. The deposit outcrops at the surface over an area of 2,500 square metres, but has not been completely evaluated. Probably it will be "concentrated to about 50 per cent at the site". This will involve constructing a hydro-electric plant and sulphuric acid plant on the upper Ogooué River.

A new company, the Company of Uranium Mines of Franceville, has already started the exploitation of this deposit. It is composed of Mokta-El-Hadid, Paris Union Bank, Rothschild Bank, and the French Atomic Energy Commission, which has been authorized to subscribe up to 240,000,000 metropolitan francs. Total capitalization of the new company is about 1,000,000,000 to 2,000,000,000 metropolitan francs.

### Private Industry Participation

The largest development project in which private interests are involved is the manganese venture on Bangombé, Okoumazoungou, and Massengo Plateaux north of Franceville. This project has progressed beyond exploration to the development stage. Construction of a 280-kilometre railway and overhead cable system to the deposit was expected to begin in 1958.

Ore production is scheduled for 1961 at the rate of 1,000,000 tonnes of 45 per cent mineral annually. The developing company is Compagnie Minière l'Ogooué (COMILOG) which reportedly is held 49 per cent by United States Steel and 51 per cent by French interests.

The Compagnie Minière de l'Oubangui Oriental and a subsidiary of Pacific Tin Consolidation Corp. are reported to have decided to develop an alluvial diamond deposit in Oubangui-Chari along the Sangha River.

Compagnie Minière du Congo Français is well along in its development of the Hapilo lead mine about 5 kilometres from the M'Fouati mine. Production, which has already begun is expected to be increased.

A cassiterite deposit in Middle Congo, reported to be "modest in size but excellent in tenor", is being developed by Société Minétaire du Congo Français.

French banking and mining interests have formed a company with a capital of 5,000,000 francs to develop the economy of French Equatorial Africa and in particular the French Congo. Known as Société pour le Développement du Congo Français, the new company will promote investments in this part of French Africa with a view to establishing mining and industrial undertakings.

Mr. Arundale concludes that if world economics and political conditions are favourable, the mineral industry will dominate the economy of French Equatorial Africa within the next few years.

## International Mines Safety Research

**S**AFETY IN MINES RESEARCH assumed an international character at a very early stage when scientists and mining engineers such as Davy, Faraday, Le Chatelier, and Watteyne, corresponded with others interested in particular aspects of safety in mines. However, collaboration became more formal in 1908 when the Technologic Branch of the U.S. Geological Survey invited representatives of Belgium, Germany, and Great Britain, to advise on the work to be carried out at the new research station at Pittsburgh. In 1911, Rice of the Bureau of Mines visited Europe and in the following year the Bureau called a conference of countries that had experimental stations. Austria, Belgium, France, and Germany, accepted.

In 1923, Rice visited the Eskmeals station of the Safety in Mines Research Board and a formal agreement was reached for co-operation between Great Britain and the United States.

In 1931 a further international conference was arranged. This was held at Buxton and was attended by representatives of Belgium, France, Germany, the United States, and Great Britain. At the conference it was decided to arrange a general interchange of reports and information which would be supplemented by visits and, where appropriate, by the interchange of personnel. Finally it was agreed that meetings should be held in each country in turn.

The Pittsburgh experimental station has remained the centre for all safety in mines research within the U.S. Bureau of Mines. Its facilities were soon complemented by the opening of an experimental mine at Bruce, some sixteen miles outside Pittsburgh. The research programme has a range similar to that of the Safety in Mines Research Establishment, but is, of course, conditioned by the special character of the mining problems.

In Belgium a testing gallery was erected at Frameries by the Government in 1902. About 1925 the station was moved to Paturages. Soon after the first world war, Lemaire initiated the sheathing of explosives to enhance safety, a practice which was subsequently developed in Great Britain, first by using an inhibiting salt sheath and later by incorporating suitable salts with the explosive to produce results equivalent to a sheathed explosive. Belgian work in recent years has been increasingly directed towards the safety of multiple shotfiring and of delay-action detonators.

The first French research station was established by the mining industry at Liévin in the Calais district in 1907. Here, much fundamental work was done on the explosibility of coal dust, under the direction of Taffanel. The Liévin station was replaced in 1919 by two experimental stations, one at Senlis near Paris and the second at Montluçon some 200 miles south. The Programme of the establishments dealt with fuel and economic research, as well as with the whole range of safety problems. After the second world war the French coalmining industry, which had been nationalized, created a research centre known as "Cerchar" (Centre d'Etudes et Recherches des Charbonnages de France) and built new laboratories at Verneuil, north-west of Paris.

Testing and experimental stations were set up at various times in the coalfields of Germany. The first experimental gallery for explosion research was established at Neunkirchen, in the Saar, in 1884. In 1909 the work was transferred to the newly established Dortmund-Derne station. This station was rebuilt after the second world war. Full-scale underground experiments are carried out at the nearby Tremonia mine. Great attention is paid at Dortmund-Derne to research

*Abstracted from a lecture delivered by H. T. Ramsey, M.Sc., to the Association of Mining Electrical and Mechanical Engineers at Newcastle upon Tyne on June 12, 1959. Mr. Ramsey is the Director, Safety in Mines Research Establishment, Ministry of Power.*

on mining explosives and on electrical equipment, and extensive facilities exist for this work. Jointly the research station and the experimental mine have conducted notable researches on coal-dust explosions and the use of stone-dust barriers.

The Freiberg station which was established in Saxony in 1929 is now in the East German zone.

Poland has reorganized and extended its research station at Mikolow and also greatly increased the facilities for research at the Barbara experimental mine. Here, in recent years, outstanding work has been done on coal-dust explosions and on the design and use of stone-dust barriers.

Czechoslovakia is actively reorganizing and extending the research facilities it had before the war and, in this connection, has profited by exchanges of publications and correspondence. Explosives testing and research relating to the occurrence and ignition of methane have been given high priority.

The Dutch research on safety in mines is carried out at Heerlen as part of the overall scientific work of the Dutch State Mines. All important aspects of mine safety are studied there.

Recently, the Government of India set up a Central Mining Research Station at Dhanbad, in the province of Bihar, under their Council of Scientific and Industrial Research. Facilities are being installed for investigating coal-dust explosions, explosives, flameproof electrical apparatus, intrinsically safe apparatus, mine supports, and wire ropes.

The Canadian Federal Bureau of Mines sponsors safety research through the National Research Council of Canada, and some six years ago set up facilities for testing flameproof electrical machinery.

The South African and Rhodesian Governments both undertake researches in connection with mining, but their major concern is with the health hazard of airborne dust.

Another major mine safety research establishment is the Makeevski Mine Safety Research Institute in the Don coalfield of Russia. This appears to be the largest institute wholly devoted to safety in mines research in the world. No arrangement has yet been reached for an exchange of information.

Organized research in Great Britain started when Sir William Garforth persuaded the Mining Association to finance large-scale work to establish the explosibility of coal dust and examine the value of stone dust in preventing the propagation of such explosions. These experiments started at Altofts in 1908 and were transferred in 1910, under the aegis of the Home Office, to Eskmeals on the Cumberland coast. From these origins stem the present research stations at Sheffield and Buxton, created and financed at first by the Miners' Welfare Commission and now the direct responsibility of the Minister of Power. Their period of development has not ended. New premises are being erected in Sheffield and new research will make full use of the improved facilities.

# MINING

## MISCELLANY

The \$250,000 clay processing plant of National Industrial Minerals Ltd., Assiniboia, has recently been officially opened. The first industry of its kind in Canada, the plant will produce refined ball clays and kaolins for use as industrial fillers.

It has been announced that the Bangka Tin Mines are to begin the exploitation of deposits of other minerals. The plan has been submitted to the Ministry of Industry and has been approved by the Indonesian Parliament. The exact date of the start of the expansion programme and the estimated cost have not yet been disclosed.

The Atomic Minerals Division of the Atomic Energy Commission of India, which is conducting an aerial survey for the location of radioactive minerals, has so far covered the regions of Bihar, Rajasthan, and parts of Orissa. The division has produced an atomic minerals map of India, which indicates that the largest occurrences of radioactive minerals are found in Bihar. Uranium-bearing minerals also occur in Salem (Madras State), Kurnool (Andhra State), and Udaipur (Rajasthan).

Construction of a refinery in the Chibougamau district, Quebec, has been approved in principle by a number of companies mining copper in this area. The site would be either at Chibougamau or Chapais, each of these centres being about 310 miles north of Montreal. The refinery would permit exploitation of low-grade ores which cannot be transported economically in their raw state. Among the companies which have expressed interest in the project are Opemiska Copper Mines Quebec Ltd., Copper Rand Chibougamau Mines Ltd., and Campbell Chibougamau Mines Ltd.

A coal-washery plant set up by India's National Coal Development Corporation at Kargali in the colliery area of Bokara, in Bihar, has been formally opened. It was built by a Japanese firm and will supply washed coal to the steel plants at Rourkela and Bhilai.

Results of three years' research on a portable super-deep-water offshore drilling platform were shown by R. G. Le Tourneau Inc. at a World Petroleum Congress held in New York on June 1 to 5. It had been earlier announced that the company was in the process of designing a "wide base" or "angled legged" platform which would be suitable for drilling in waters up to 600 ft. deep. Previous platforms have been able to drill in waters with a maximum depth of around 150 ft.

The latest aerial survey map in the series produced by Australia's Bureau of Mineral Resources covers an area of 7,700 square miles in the Northern Territory, which was surveyed in 1956 by a D.C.3 aircraft equipped with magnetic and radiometric equipment. The most prominent feature of the area, the

Davenport Range, lies south-east of Tennant Creek. The map shows that the whole region is magnetically disturbed, as is the adjoining Tennant Creek area. It also shows the position of ninety-four radiometric anomalies. Copies of the map are obtainable from the Bureau of Mineral Resources at Canberra, Melbourne, and Darwin; the Northern Territory Mines Branch at Darwin, Alice Springs, and Tennant Creek; and the Australian Atomic Energy Commission, Sydney.

A company which has been prospecting for manganese in the Ivory Coast since 1927 has found veins of manganese-bearing ore at depths ranging from 2 to 10 metres in the region of Grand Lehou. After crushing and washing, this ore is expected to yield a minimum of 46 per cent manganese. Open-cast mining is due to start in 1960, and the company's engineers consider that their yearly production will be about 100,000 tonnes over a period of approximately thirteen years.

The search for minerals is proceeding in the Sudan, reports the Export Services Branch of the Board of Trade. In 1958, a firm was granted 138 prospecting licences for bauxite. The French Government is seeking diamonds in the Kenieba region, and gold, zinc, copper, and lead around Tessalit. The Geological and Mineral Prospecting Service considers that the evidence produced by its surveys shows deposits of nearly 10,000 tonnes of lithium in an area extending for 12 km. near Bougoni. The same organization has begun prospecting for platinum in the Adrar region and for copper and iron at Niore.

New deposits of iron ore of a high quality are reported to have been discovered in the province of Tacna, in southern Peru.

At the Keciurlu mines in western Turkey, sulphur production has been doubled from 6,000 tonnes in 1950 to 12,825 tonnes in 1958.

A new copper refinery has been brought into operation at Sredna Gora, some 78 miles from Sofia, the Bulgarian capital. Besides producing electrolytic copper, copper sulphate and sulphuric acid, it will be the first plant of its kind in the Balkans to turn out gold selenite and silver selenite.

The West German metals producer, Ferrostaal A.G., of Essen, has announced its interest in the complex of ore workings at Sierra Grande, in Patagonia. The mines are to be "let" to foreign private capital by the Argentine munitions authority.

A progress report issued by Silvermines Lead and Zinc Co. Ltd., of Shallee, County Tipperary, in Eire, states that in the past six months drilling has continued and some 350,000 l. tons of barytes have been proved to date. A further 350,000 tons are indicated.

### COMING EVENTS

The first International Compressed Air and Hydraulics Exhibition and the second European Fluid Power Conference will be held at Olympia, London, from April 25 to 29, 1960.

Claimed to be the first of its kind in the world, an Engineering Materials and Design Exhibition, embracing virtually every industry, is to be held at Earls Court, London, from February 22 to 26, 1960. It will be devoted solely to materials and components in engineering design.

### PERSONAL

We regret to announce the sudden death on June 6 of Mr. T. H. Hawksford, a member of the Northern Region Office of Ruston and Hornsby Ltd.

Mr. L. Dobson, engineering director of Imperial Chemical Industries Ltd., Plastics Division, is leaving I.C.I. at the end of August and joining the board of Simon-Carves Ltd.

Mr. P. Hunter Gordon has been appointed chairman and managing director of Cable Belt Ltd. in succession to the late Mr. S. Hunter Gordon.

Mr. Ronald Adamson has been appointed company secretary and comptroller of Joy-Sullivan Ltd. in succession to Mr. R. A. Rust, who recently became general manager of the company's new air power division.

Mr. G. Ronald Pryor has been elected president of the Institution of Production Engineers for the year 1959/60. The present chairman of the Council, Mr. H. W. Bowen, has been re-elected, as has the present vice-chairman of the Council, Mr. R. H. S. Turner.

### COMPANY NEWS

Fisher and Ludlow Ltd., of Birmingham, have formed a selling organization for their Mining Equipment Division.

Ceremonies lasting a week will begin on August 24 to celebrate the official opening of the giant new tractor plant at Tannochside by the Caterpillar Tractor Co. Ltd. The formal opening of the plant will be by the chairman of the board of directors, Mr. L. B. Neumiller, who with other company officials will fly over specially for the occasion from Caterpillar's headquarters in Illinois, U.S.A.

### CONTRACTS AND TENDERS

#### India

Coal cutters and drills, scraper chain and belt conveyors, endless haulages. Issuing authority, National Coal Development Corporation (P) Ltd. Tender Nos. CPO/A-1/38-R, CPO/M/39-R, CPO/A/40-R, CPO/A-1/41-R and CPO/A-1/37-R. Closing date, July 16, 1959. B.O.T. Ref.: ESB/14534/59. Telephone, Chancery 4411, extension 738 or 771.

#### Spain

I.C.A. procurement, manganese ore (value \$120,000 f.o.b.). Procurement Authorization No. 52-6507-99-PL-9205. Sub-authorisation No. 9205-1. Issuing Authority, Consejo Ordenador de Minerales Especiales de Interés Militar. Closing date, July 6, 1959. B.O.T. Ref.: ESB/14834/59/ICA. Telephone, Chancery 4411, extension 354.

## Machinery and Equipment

# New Development in Electric Traction

The development of the underground diesel mining locomotive since the war has been so considerable that for years it has been taking the place of electric trolley and battery locomotives all over the world. Now, however, comes a major development in electric traction which brings both trolley and battery locomotives back again as worthy competitors of the diesels in every way.

The original patents were taken out a year or two ago in South Africa, and thanks are due to Dr. H. E. J. Symes, at that time electrical engineer with New Consolidated Goldfields, for his conception, which avoids all the problems associated with heavy traction motors. Arrangements were made with the Hunslet Companies both in South Africa and England to develop and market the project, and immediate steps were taken to carry out trials with experimental and prototype units under arduous working conditions in South African gold mines.

Locomotives of this type are now being built in the Hunslet factories both in Leeds (England) and Johannesburg (South Africa) in several sizes. Basically, the Symes patent differential drive consists of two compound wound d.c. machines coupled to the two input shafts of the differential gearbox. The output from the differential cage is coupled to the locomotive road wheels, and when the machines are running at the same speed in opposite directions, the locomotive is stationary. The two machines are connected in parallel across the supply, whilst their shunt fields are in series. When placing the locomotive in service, the two d.c. machines are started

as compound motors under light load conditions and run up to the same idling speed. The locomotive is then ready for work.

Crompton Parkinson Ltd. and Allen West and Co. Ltd. supplied the motors and control gear on the prototype locomotives, and the negligible maintenance required on these locomotives speaks highly of their equipment.

The principal dimensions, etc., of the Hunslet 0-4-0 type "40" differential trolley locomotive are: gauge of railway, 2 ft. (or to customer's gauge); diameter of coupled wheels, 1 ft. 8 in.; wheelbase, 3 ft. 10 in.; height overall (less trolley), 3 ft. 10½ in.; width overall, 3 ft. 2½ in. (for 2 ft. gauge); length over buffer beams, 7 ft. 7 in.; nominal h.p., 40; loco speed at maximum power, 6½ m.p.h.; maximum loco speed, 12 m.p.h.; maximum tractive effort at starting, 4,400 lb.; weight in working order, 7.5 tons. The locomotive will haul 200 stons at 6.25 m.p.h. on level gradient.

## FLAME-PROOF CHAIN BLOCKS

Geo. W. King Ltd. announce that their standard of Marvex and Mammoth electric chain pulley blocks are now available with flame-proof electrical equipment. Lifting capacities range from 5 cwt. to 10 tons, and although the additional equipment necessarily increases the physical proportions, all components are carefully arranged to provide a compact unit.

The electrical gear is mounted in flame-proof enclosures which fully com-

ply with the requirements of the Ministry of Fuel and Power, and carry the Buxton certificate for Groups II and III gases. Full precautions are taken to ensure that no sparks can be produced by impact of mechanical components, and wherever necessary non-ferrous materials are employed.

With the exception of hook suspension, blocks may be arranged for normal suspension mountings.

The manufacturers have added flame-proof electric chain pulley blocks to their range of mechanical lifting equipment to meet the growing demands of modern industry where production processes frequently give rise to hazards from inflammable dusts, fumes, and gases.

## AN 80-TON MOTO-CRANE

The Thew Shovel Co., United States, announces a new addition to its line of rubber-tired cranes with the introduction of an 80-ton Moto-Crane, Model MC-875. This unit contains the latest Lorain-built features, including shear ball turntable mountings, two-lever Joy-Stick air controls, square-tubular-chord boom and one-piece cast steel carrier frame.

Contributing to the high rated capacities of this model is the Lorain square-tubular-chord boom. Continuous round tubular lacing is welded to the chords at common points, giving a banding effect for greater strength. Boom sections are pin connected for faster assembly. This machine handles up to 200 ft. of boom plus 40 ft. tip extension, which is also of square-tubular-chord construction.

The turntable is mounted on the carrier by the Lorain shear-ball method; the only single ball race design mounting on the market. Seventy hardened steel balls snugly seated in hardened, precision-ground steel races take all the vertical, horizontal, and radial loads and thrusts. There is no need for a centre pin and nut, a centring gudgeon, or any type of turntable rollers. Consequently, there are no lubrication or maintenance problems common to ordinary mountings.

Joy-Stick air power controls are another Lorain exclusive used on this model. Only two Joy-Stick hand levers are used to apply metered air to all turntable friction clutches. Metered air operation feeds air power to the clutches at any rate of flow and in any amount desired while retaining the normal feel of all operations. Levers are moved forward, backward, or side to side for fast responding single operations or to quarter positions for multiple, combined operations. Smoother, faster, more precise operations with less operator fatigue is claimed as the result.

Many other turntable features such as spur gear driven boom hoist anti-friction bearing mounted hoist drums, power operated tilting and folding gantry are just a few of the design features of this heavy-duty crane. Ten travel speeds up to 20 miles per hour give impressive mobility for this size machine.

The Hunslet electric trolley locomotive with differential drive



## Marketing of Sierra Leone Diamonds

As foreshadowed by Mr. Harry Oppenheimer in his statement accompanying the De Beers annual report, a new Agreement on the marketing of diamonds mined by alluvial diggers in Sierra Leone has been announced. It supersedes the existing agreement due to expire in December, 1960.

The Agreement, which is for a period of five years from August 1, 1959, followed discussions in which both the Government and the Diamond Corporation Ltd., the latter through its wholly-owned subsidiary the Diamond Corporation Sierra Leone Ltd., were able to draw on the experience gained in the purchasing of diamonds mined in Sierra Leone since the first agreement was signed in 1956.

The Sierra Leone Government is to establish a Government Diamond Office in the country and will appoint the Diamond Corporation to act as managers. The Government Diamond Office will be controlled by an executive board to which the Government will appoint three members and the Diamond Corporation two. All diamonds produced in Sierra Leone under the Alluvial Diamond Mining Ordinance will in future be exported and marketed solely through the new office.

The new Agreement reflects the understandable desire of the Sierra Leone Government to participate in the marketing of diamonds produced in the territory. One of the world's largest diamond-producing areas, Sierra Leone exported

863,202 ct. worth £6,425,197 in 1957 and last year production was expanded to 1,600,000 ct. As is well known, illicit mining and smuggling have reached alarming proportions in recent years, and the hope is expressed that the new arrangement will bring additional stability to licensed alluvial diamond mining in Sierra Leone.

A noteworthy provision of the new Agreement is that any producer dissatisfied with the prices offered by the Government Diamond Office may have his diamonds shipped to London to be offered for tender. In Ghana, on the other hand, African diggers have been obliged since 1954 to sell their production through the Accra market, without any alternative being permitted. They were recently reported to be dissatisfied with the prices quoted by dealers at Accra (which are also, in effect, the London prices) and have been urging the reintroduction of facilities to sell through the West African banks as an alternative to Accra.

It will be interesting to see whether Sierra Leone's example, if the plan proves successful, will lead to any modification of Ghana's selling arrangements, particularly having regard to the Ghana Government's announced intention of requiring C.A.S.T.'s to sell all its production through Accra after the end of 1960, when the company's present contract with the Central Selling Organization expires.

### U.S. MAGNESIUM CONSUMPTION

Washington: A gain from 25 to 30 per cent in U.S. consumption of magnesium was estimated for this year by the U.S. Department of Commerce. It was believed possible, according to some officials there, that this increase over last year's use of the metal might make necessary the reactivation of part of American production facilities now idle. Shipments in the first part of 1959 were said to have increased substantially more than industrial production, the excess being filled from producers' inventories.

### RECORD ALUMINIUM OUTPUT

Production of primary aluminium in the U.S. totalled 163,857 short tons during May, a new all-time record, according to figures issued by the Aluminium Association. This compared with April output of 155,213 short tons and May 1958 production of 126,327 tons. For the first five months of this year, primary aluminium production amounted to 775,076 short tons compared to 647,236 tons produced in the corresponding period of the preceding year.

★

As we go to press it is learned that the Aluminum Co. of America has succeeded in acquiring a U.K. sales and manufacturing outlet. Imperial Aluminium Co. (Impalco), a new company, is to be formed by Alcoa in partnership with I.C.I., who will hold the controlling interest. Impalco

## LONDON METAL AND ORE PRICES, JUNE 25, 1959

### METAL PRICES

Aluminium, 99.5%, £180 per ton  
Antimony—  
English (99%) delivered, 10 cwt. and over £190 per ton  
Crude (70%) £190 per ton  
Ore (60%) bases 19s. 6d./20s. 6d. nom. per unit, c.i.f.  
Arsenic, £400 per ton  
Bismuth (min. 1 ton lots) 16s. lb. nom.  
Cadmium 9s. 0d. lb.  
Cerium (99%) net, £16 0s. lb. delivered U.K.  
Chromium, Cr. 99% 6s. 11d./7s. 4d. lb.  
Cobalt, 14s. lb.  
Germanium, 99.99%, Ge. kilo lots 2s. 5d. per gram  
Gold, 249s. 6d.

Iridium, £23/£25 oz. nom.  
Lanthanum (98/99%) 15s. per gram.  
Manganese Metal (96% - 98%) £245/£250  
Magnesium, 2s. 3d. lb.  
Nickel, 99.5% (home trade) £600 per ton  
Osmium, £21/£23 oz. nom.  
Osmiridium, nom.  
Palladium, £6 10s./£7 10s.  
Platinum U.K. and Empire Refined £28 10s. oz.  
Imported £26½/£27½  
Quicksilver, £75½ ex-warehouse  
Rhodium, £41/£45 oz.  
Ruthenium, £18/£20 oz. nom.  
Selenium, 50s. 0d. per lb.  
Silver, 78½d. f. oz. spot and 77½d. f.d.  
Tellurium, 15s./16s. lb.

### ORES AND OXIDES

Bismuth .. .. .	30% 5s. 0d. lb. c.i.f.
.. .. .	20% 3s. 3d. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (semifriable) 48% (Ratio 3:1) .. .. .	£15 15s. 0d. per ton c.i.f.
.. Hard Lumpy 45% (Ratio 3:1) .. .. .	£15 10s. 0d. per ton c.i.f.
.. Refractory 40% .. .. .	£11 0s. 0d. per ton c.i.f.
.. Smalls 44% (Ratio 3:1) .. .. .	£14 0s. 0d. per ton c.i.f.
Baluchistan 48% (Ratio 3:1) .. .. .	£11 15s. 0d. per ton f.o.b.
Columbite, 65% combined oxides, high grade .. .. .	nom.
Fluorapatite—	
Acid Grade, Flotated Material .. .. .	£22 13s. 3d. per ton ex. works
Metallurgical (75/80% CaF <sub>2</sub> ) .. .. .	156s. 0d. ex works
Lithium Ore—	
Petalite min. 34% Li <sub>2</sub> O .. .. .	40s. 0d./45s. 0d. per unit f.o.b. Beira
Lepidolite min. 34% Li <sub>2</sub> O .. .. .	40s. 0d./45s. 0d. per unit f.o.b. Beira
Amblygonite basis 1% Li <sub>2</sub> O .. .. .	£25 0s. per ton f.o.b. Beira
Magnetite, ground calcined .. .. .	£28 0s./£30 0s. d/d
Magnetite Raw (ground) .. .. .	£21 0s./£23 0s. d/d
Manganese Ore Indian—	
Europe (46% - 48%) basis 57s. 6d. freight .. .. .	nom.
Manganese Ore (43% - 45%) .. .. .	nom.
Manganese Ore (38% - 40%) .. .. .	nom.
Molybdenite (85%) basis .. .. .	8s. 11d. per lb. (f.o.b.)
Titanium Ore—	
Rutile 95/97% TiO <sub>2</sub> (prompt delivery) .. .. .	£31/£33 per ton c.i.f. Aust'a.
Ilmenite 52/54% TiO <sub>2</sub> .. .. .	£11 10s. per ton c.i.f. Malayan
Wolfram and Scheelite (65%) .. .. .	96s. 6d./101s. 6d. per unit c.i.f.
Vanadium—	
Pure dioxide 95% V <sub>2</sub> O <sub>5</sub> .. .. .	8s./8s. 11d. per lb. V <sub>2</sub> O <sub>5</sub> c.i.f.
Zircon Sand (Australian) 65% 66% ZrO <sub>2</sub> .. .. .	£17 10s. ton c.i.f.

### FEDERATION OF NIGERIA PETROLEUM ENGINEER, MINES DEPARTMENT

**Qualifications.** A degree or equivalent qualification in geology or in oil, mining or mechanical engineering followed by specialisation in oil technology with at least 10 years' experience in oil exploration and development of oil fields. Post-graduate or specialist training in petroleum reservoir engineering and knowledge of fiscalisation of oil desirable.

**Duties.** To build up a hydrocarbon section of the Mines Department responsible for supervising oil exploration and exploitation activities, measuring oil produced and saved and assessing royalty, preparing reports, statistics, etc., ensuring the proper application of relevant legislation and regulations and preparing training schemes in oil technology.

**Terms of Appointment.** On contract for one tour of 12-18 months in the first instance, with gratuity on satisfactory completion of contract. Salary not exceeding £2,000 p.a. Free passages for officer and wife. Passage concessions and allowances for children. Quarters provided at rental if available. House or hotel allowance if quarters not provided. Generous leave. Taxation at local rates.

Apply to Director of Recruitment, Colonial Office, London, S.W.1. State age, qualifications and experience. Quote BCD 99/14/012.

will take over I.C.I.'s existing fabrication plant in South Wales and initially at least, sales will be made through the I.C.I. organization.

\*

Since, January, 1959, demand for aluminium on the French domestic market has picked up considerably. In April deliveries to consumers were close to the record level of December, 1957.

### ITALIAN QUICKSILVER

Commenting on reports from Italy that representatives of the Dow Chemical Co. were negotiating purchases of substantial amounts of Italian quicksilver, an official of the company stated in New York that, although inquiries about quicksilver had recently been made in Italy, none had been purchased. It was further stated that, while in Italy on other business, two of the company's representatives had investigated reports that surplus quantities of quicksilver were available in that country. They had found, however, that quicksilver in Italy was not available as easily as was believed, and prices indicated were not considered attractive. Consequently, no quicksilver business had been transacted by Dow in Italy.

In the light of this statement, it is interesting to recall that earlier in the year Italy's quicksilver stocks were generally believed to total between 30,000 and 60,000 flasks.

### NORWEGIAN MAGNESIUM PROJECT

Norsk Hydro, Western Europe's largest producer of magnesium, has decided to increase its production capacity at Heroya, Southern Norway, by 50 per cent to about 13,500 tonnes per year. The project is expected to cost about 14,000,000 kroner and will be completed during the first half of 1960. Almost all of Norsk Hydro's magnesium is exported.

### TANTALUM PRICE CUT

The price of high-purity tantalum melting stock has been reduced to \$35 from \$60 a lb. by Union Carbide Metals Co., a division of Union Carbide Corporation. The company states that expanded production will permit the sale of this material in quantities of 400 lb. for immediate delivery.

### U.S. BISMUTH STATISTICS

A sharp decline in consumption and an attendant rise in consumer inventories characterized bismuth metal in 1958, reports the Bureau of Mines, U.S. Department of the Interior.

Reversing a 3-year upward trend, U.S. domestic output of bismuth metal declined 17 per cent in 1958. As in previous years, production was derived almost exclusively from metallurgical by-products of lead refining. The bismuth enriched by-products were derived from both domestic and foreign ores.

Users of bismuth in the U.S. consumed 600 s.tons of metal—23 per cent less than in 1957. The decline was attributed in part to the lower level of industrial activity during the first nine months of the year, and partly to larger imports of bismuth in intermediate smelter products that directly entered untabulated in-

dustrial end uses.

Stocks of metallic bismuth held by consumers and dealers rose 46 per cent in 1958 to 273 s.tons, setting a record stock level for the eight years in which the Bureau of Mines has assembled data on bismuth stocks. However, producer stocks declined 25 per cent, indicating that the abnormally high consumer inventories represented a shift in stocks rather than a build-up of surplus metal.

In the first quarter of 1959 consumption of bismuth in the U.S. totalled 152

s.tons. This quantity was 10 per cent less than that consumed in the previous quarter and 2 per cent less than the average quarterly consumption in 1958. Reversing a sustained upward trend, consumer and dealer stocks declined considerably.

Imports of bismuth metal declined sharply during the first quarter to 59 s.tons—a 37 per cent drop from the average quarterly imports in 1958. Most of the metal continued to come from Peru and Mexico.

## COPPER • TIN • LEAD • ZINC

(From Our London Metal Exchange Correspondent)

In the absence of any new features the London market has been uneventful during the past week, with the exception that continued selling pressure has resulted in a further sharp fall in copper values, whilst zinc prices have been inclined higher.

### U.S. WAGE NEGOTIATIONS DOMINATE COPPER

There was a better feeling towards copper early in the week following U.S. advices immediately before the weekend, when both dealers and customs smelters reported more interest. Consequently the London market opened on a firm note, but the rally has not been maintained and values have fallen away further under substantial selling pressure and continued lack of European demand.

Although the increase in stocks in London Metal Exchange official warehouses at 250 tons to 14,108 tons at the end of last week was lower than expected, the contango has been maintained as the prospects of shipping copper to the U.S., in the event of a strike, lessen. In this connection it may be noted that these stocks have risen nearly 9,000 tons in the first six months of the year. Recently, however, customs smelters at 31½ c. and dealers at 30½ c. have found little interest in the copper, although producers continue to make satisfactory sales for July. It is noticeable, however, that there is a more cautious attitude on the part of consumers in their buying.

Offerings of scrap in the U.S. have been more plentiful and the price has, in spite of this, been maintained at 25 c. which is equivalent to a price of 30½ c. for electro. During the week the principal Canadian producers have reduced their price ½ c. to Can. 30 c. and a further reduction has taken place in the Belgian price to B.frs. 31 per kilo.

The price trend for the immediate future is still closely linked with developments in the U.S. in the negotiations for a new labour contract. It is generally agreed that the chances of agreement being reached between the union and the copper companies before the current contracts expire on June 30th, are remote. At the same time, however, there is a growing opinion in trade circles that a strike will not be called on July 1st, as on previous occasions the unions concerned have continued working beyond the expiry date of their agreements. It appears that a national strike vote will be taken by secret ballot at the end of the month, and the results of this should be known early in July. The unions have still not made known officially the amount of the "substantial" wage increase they

look for but are awaiting offers from the companies.

### LITTLE CHANGE IN TIN, LEAD AND ZINC

The tin market has been uneventful during the week. Demand continues to be satisfactory both from the Continent and U.S., and consequently values have been well maintained. It is believed that further sales have been effected by the Buffer Pool during the week but not in sufficient quantities to upset the present overall price structure.

Exports of tin metal from Malaya increased sharply in May to 4,006 tons against April's 2,544 tons. Stocks in U.S. official warehouses increased at the end of last week by 185 tons to 7,981 tons.

On Thursday morning the Eastern price was equivalent to £821½ per ton c.i.f. London.

The adequacy of nearby lead supplies has been reflected in a widening of the contango, whilst the premium on zinc for current period delivery has increased in consideration that nearby metal is not too plentiful in London and also on account of the satisfactory statistical position. Demand for lead is of a routine nature, whilst for zinc it continues good, particularly in the U.S. where the steel industry is still buying for delivery before June 30th. Production of lead from mines in the U.S. in April amounted to 21,300 tons which is approximately on the same level as the previous month. Reports from the U.S. indicate that the authorities there will not make any charge in the present lead and zinc import quotas for the rest of this year.

Closing prices up to midday, June 25, are as follows:

	June 18		June 25	
	Buyers	Sellers	Buyers	Sellers
<b>COPPER</b>				
Cash ..	£224½	£225	£220½	£220½
Three months ..	£225½	£225½	£221½	£222
Settlement ..		£225		£220½
Week's turnover	11,950 tons		11,125 tons	
<b>LEAD</b>				
Current ½ month	£69½	£70	£69½	£69½
Three months ..	£71	£71½	£71½	£71½
Week's turnover	5,000 tons		6,425 tons	
<b>TIN</b>				
Cash ..	£789½	£790	£790	£791
Three months ..	£790	£790½	£791½	£792
Settlement ..		£790		£791
Week's turnover	515 tons		460 tons	
<b>ZINC</b>				
Current ½ month	£78½	£79	£79½	£79½
Three months ..	£77½	£77½	£78½	£78½
Week's turnover	4,025 tons		7,050 tons	

## Mining Finance

## Lean Year for Siamese Tin

All the great tin-producing countries of the world have, of course, been severely hit by the export controls applied under the International Tin Agreement. Within the overall picture of difficulty, however, there are quite wide variations in the degree of hardship as between, for example, Bolivia and Nigeria.

Thailand is one of the worst-hit countries—the 1958 quota for dredges in Thailand was about 38.5 per cent of assessment, against 47.8 per cent for similar units in Malaya. It was to be expected, therefore, that Siamese Tin would be among the most seriously affected tin producers, and the report and accounts now published confirm this view only too strongly. The "marginal" profits forecast by the chairman last year, in fact totalled only £11,849 in the hands of the parent company, against £277,941 in 1957.

This in itself, though serious, would not have been quite so bad had it not been for the fact that the period of low prices and output restriction coincided with the reconstruction, at no small cost, of two of the syndicate's dredges. Apart from this, £137,000 has been contributed to the buffer stock by the syndicate, and, as a result of low lead prices, the Lowland Lead venture has had to be written off as a failure.

Siamese Tin's finances are, therefore, in a somewhat uncomfortably depleted state. Indeed, at the date of the latest balance sheet (Dec. 31, 1958), current assets and trade investments of £730,000 balanced liabilities and provisions of £656,000—not much room for manoeuvre. While output restriction lasts, the position will remain difficult, but once Siamese Tin can bring its newly modernized dredges back into full-time operation, the recovery should be swift. With the shares standing at about 8s. 6d. an investor prepared to exercise patience might not be wrong to buy at the present time.

## GOLD FIELDS BID FOR ANGLO-FRENCH

Following discussions between the two companies, Consolidated Gold Fields is to make an offer of one ordinary share and 5s. 0d. in cash for every two stock units of Anglo-French Exploration. The Gold Fields' shares to be issued will not participate in Gold Fields' final dividend for the 1958-9 financial year, but Anglo-French propose to declare a final dividend of 2s. per unit which accepting stockholders will be entitled to retain.

At current price levels, the offer puts a value of 33s. 6d. on Anglo-French stock, and taking into account the relative growth prospects of the two companies, this seems to be a fair valuation. The reasoning behind the offer, however, is obscure.

Gold Fields say that 'nearly one-half of the total investments held by Anglo-French are in companies either managed by, or closely associated with, Gold Fields'. This may be so, but it hardly seems to be conclusive evidence that a merger would be in the best interests of both companies. Holders of Anglo-French should make no move until they have received full particulars.

**Better Earnings by Burma Corporation.**—A report from Burma Mines reveals that the profits of Burma Corporation (1951), the operating joint venture company, showed a substantial improvement in the first quarter of 1959. Revenue was £658,500 and expenditure £556,230, leaving profits of £102,270 compared with £78,135 in the preceding quarter. The improved revenue resulted from larger sales of lead, zinc and silver, and better prices for the two latter products.

**Selayang Tin Dredging.**—At Monday's annual meeting of Selayang Tin Dredging, Mr. T. J. Bond, the chairman, said that the board was engaged on "proposals which they consider to be in the best interests of the company". Detailed information could not be given at the present time, but if it proved possible and advisable, publication of an interim report later in the year would be considered.

**Naraguta Extended Maintains Payment.**—Profit of Naraguta Extended Areas in 1958 was reduced to £5,133 from £9,146 as a result of export restriction. Tax provisions no longer required brought back £3,062 to the accounts, however, so that it is possible for the company to recommend an unchanged dividend of 5 per cent, absorbing £3,174 net. £5,345 is carried forward, against £3,274 brought in. Meeting, July 16.

**Natal Navigation Pays Same.**—With group attributable profits barely changed at an estimated £246,879, Natal Navigation Collieries and Estate Co. is recommending an unchanged final dividend of 2s. per share for the year to June 30 next. Last year's bonus of 1s. per share is also repeated, so that the total distribution for the year is 5s., absorbing £167,837 gross.

**Sungei Kinta.**—Results of Sungei Kinta Tin Dredging for the year ended December 31, 1958, show a net loss of £4,481 compared with a profit of £12,547 in the preceding twelve months. The dividend is passed. Meeting, July 28.

**B.H.P. May Bid for Australian Iron and Steel.**—The Broken Hill Proprietary Co. is considering making a bid for the whole of the issued preference shares of Australian Iron and Steel. Shareholders will be notified at the earliest possible opportunity of the terms of the offer.

**London Tin.**—Earnings of London Tin Corporation in the year to March 31, 1959, fell to £888,079 from £1,330,768 in the preceding year, both figures before tax. Dividends totalled 20 per cent against 30 per cent. In his statement (extracts, p. 705) Mr. J. Ivan Spens, the chairman, says that although revenue in the coming year is likely to be slightly lower again, it may be possible to maintain the dividend at the 1959 level. Meeting, July 15.

**E.R.P.M.'s Tax Position.**—At the annual meeting of East Rand Proprietary, Mr. P. H. Anderson, the chairman, said that it was not clear how the company would be affected by the new tax concessions for ultra-deep mines. In any event, E.R.P.M. did not expect to pay any formula tax this year because of the large amount of capital expenditure still unamortized and the current heavy capital programme.

## MARKET HIGHLIGHTS

Last Friday's news of rioting in Durban struck the London market in South African gold shares very hard indeed, at least as far as prices were concerned. At the same time it also rammed home the point that the real market in Kaffirs these days is in Johannesburg. And rightly or wrongly, Cape investors take a much less serious view of African disturbances than do London dealers.

London's immediate reaction to the news on Friday morning was to embark on a heavy and indiscriminate precautionary marking down of gold share prices. Meanwhile Johannesburg had feared that something of the sort might happen and prices there were also lower to begin with. But it was soon considered at the Cape that London had overdone matters and such selling that subsequently developed was soon absorbed by buying orders from Johannesburg. The net result was that most prices closed above the worst.

Free State Geduld, for instance, were finally 3s. 9d. lower on balance at 190s. 7½d. after having been 188s. 9d. and Welkom, which had been only 24s. 7½d., closed with a net loss of 1s. at 25s. 3d. Since then a recovery movement gained ground with Free State Geduld rising to 192s. 6d. and St. Helena going ahead by 2s. 6d. to 65s. City Deep (22s. 9d.) resumed their steady rise and hopes of another bumper profit in the June returns raised Harmony to 43s. 9d. The surprise news of the bid from Gold Fields produced a jump in Anglo-French to 37s. 3d. at one time. Other finance shares recovered with the rest of the market and among diamonds, De Beers rallied to 161s. 3d. after falling earlier to only 158s. 1½d.

Movements in the Base-metal sections were usually insignificant. Copper shares which might have been expected to suffer with the weakness of the metal price found a steady trickle of buying orders and thus lost relatively little ground. Lead-zincs continued their rather dull course with occasional small losses being recorded from day to day. There was little business in the Tin group.

The Miscellaneous section provided its usual scattering of lively features.

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## THE KADUNA SYNDICATE

The 48th ordinary general meeting of The Kaduna Syndicate Limited was held on June 24 in London, Mr. R. S. Mac-killigin, C.M.G., O.B.E., M.C. (the chairman) presiding.

The following is an extract from his circulated review:

Under the International Tin Restriction Scheme, the Company's export of tin concentrate during the year ended December 31, 1958, was limited to approximately 167 tons. Output had, therefore, to be curtailed, and only 233.5 tons of concentrate were won as compared with 321 tons for the previous year. Strenuous efforts were made to reduce costs, and these were successful to the extent that the cost per ton delivered f.o.r. at £256 3s. 3d. was actually slightly below that of 1957.

As was to be expected in view of the curtailment of output and sales, the mining profit for the year showed a substantial fall at £20,910 compared with £44,735 in the previous year. The Directors recommend a final dividend of 16½ per cent, making 33½ per cent for the year.

It would appear that the drastic restriction of output under the Restriction Scheme is at last having its effect. The price of the metal has for some time been maintained at around £780 per ton, and it is believed that the Manager of the Tin Buffer Stock has been able to dispose of a part of his holding.

The report was adopted.

## KADUNA PROSPECTORS LIMITED

The 44th Ordinary General Meeting of Kaduna Prospectors Limited was held on June 24 in London, Mr. R. S. Mac-killigin, C.M.G., O.B.E., M.C. (the Chairman) presiding.

The following is an extract from his circulated review:

Under the International Tin Restriction Scheme, the Company's export of tin concentrate during the year ended December 31, 1958, was limited to approximately 42 tons. Output had, therefore, to be curtailed, and only 63.75 tons of concentrate were won as compared with 86 tons for the previous year. Strenuous efforts were made to reduce costs, and these were successful.

As was to be expected in view of the greatly reduced sales, the mining profit for the year, after various charges, showed a substantial fall at £4,507 compared with £10,187 in the previous year. The Directors recommend a total dividend of 25 per cent for the year.

It would appear that the drastic restriction of output under the Restriction Scheme is at last having its effect. The rate of permitted export has been increased for the second quarter of 1959, and it is to be hoped that further increases will be allowed later in the year.

As the Company has built up its stock of tin ore to approaching the permitted limit, output must now be restricted to permitted exports, and production for the first four months of 1959 amounted to only 12.5 tons as compared with 25 tons in the corresponding months of last year. Unless quotas are increased substantially, there will, inevitably, be a sharp increase in cost per ton.

The report was adopted.

## LONDON TIN CORPORATION LIMITED

### CHAIRMAN'S STATEMENT

The Thirty-third Annual General Meeting of London Tin Corporation Limited will be held on July 15 at The Chartered Insurance Institute, 20 Aldermanbury, London, E.C.

The following is the statement by Mr. J. Ivan Spens, O.B.E., the chairman, which has been circulated with the report and accounts for the year ended March 31, 1959:—

### Accounts

The Corporation's net profit for the year ended March 31, 1959, after providing for taxation, was £464,079, compared with £644,768 for the previous year.

The dividends totalling 20 per cent. less income tax at 8s. 6d. in the £ already paid in respect of the year (compared with 30 per cent. last year) took £416,097 and left a balance of £47,982 to be added to the carry forward which now stands at £358,194.

The substantial fall in our income from investments is due entirely to the enforced limitation of production and export of tin imposed by the International Tin Council in the terms of the International Tin Agreement, and I will later refer to its impact on our organization during the year covered by these accounts.

The flat rate of profits tax introduced in the Finance Act, 1958, has largely relieved us of the heavy liability for profits tax which would otherwise have arisen under the provisions of the Finance Act, 1957, in respect of our substantial income from Overseas Trade Corporations.

### Price of Tin

The average London cash price of tin metal during the year was approximately £745 per ton.

Increasing and persistent offerings of tin from the Sino-Soviet bloc led to the United Kingdom Government imposing restrictions on imports of tin from that source on August 30, 1958, and similar steps were taken by other European Governments. The Buffer Stock Manager's funds were, however, insufficient to continue supporting the market at the floor price of £730 per ton and he withdrew on September 18, 1958. The price then fell from £730½ to £642½ per ton, but by early October it had advanced beyond £730 per ton and eventually reached the highest of the year at £783½ per ton on February 26, 1959.

### Malaya

At the end of the year there were 34 dredges under the management of Anglo-Oriental (Malaya) Limited and 17 of them were idle as the result of export control. These, of course, are being maintained in readiness to resume operations when required. Two old dredges were scheduled for sale and breaking up, and one other idle dredge which was originally closed down for security reasons will not be rehabilitated for the present. There were thus only 14 dredges in operation.

The output of tin concentrate from the mines under the management of Anglo-

Oriental (Malaya) Limited was 10,683 tons against only 8,242 tons permitted for export, thus increasing the stocks at the mines which have been built up in an endeavour to keep as much labour as possible employed. Prospecting in Malaya is being extended as the security situation approaches normal. The report of the Land Administration Commission was tabled in the Federal Legislative Council in June, 1958, and it is hoped may lead in due course to a more liberal policy of alienation of land for mining and to large scale prospecting so urgently needed.

### Other Areas

The output of tin concentrate from the mines under the management of Anglo-Oriental (Malaya) Limited in Thailand was 781 tons against permitted exports of 730 tons.

During the year it was decided that the continuance of operations by the two small dredges could no longer be justified in view of the limited ore reserves and the unfavourable conditions for future development prevailing in Burma. The operating company, Tavov Tin Dredging Corporation Limited, decided to cease work and dispose of its assets, and it has since gone into voluntary liquidation.

The mines under the management of A.O. Nigeria Limited produced 2,627 tons of tin concentrate against permitted exports of 2,452 tons. The production of 359 tons of columbite concentrate arose entirely from the treatment of tin-bearing alluvial.

### General

It is noteworthy that the total tonnage of tin concentrate produced during the year to March 31, 1958, by the operating companies under the management of Anglo-Oriental (Malaya) Limited and A.O. Nigeria Limited amounted to 19,550 tons, of which as much as 17,897 tons were free for export and sale because little more than the last quarter of that financial year was subject to control. In the year under review, however, with control operating throughout, the total production was cut-back to 14,091 tons of which only 11,424 tons were permitted for export. Thus the Group's total production was cut-back by 5,459 tons, and exportable production by no less than 6,473 tons compared with the previous year. Tin mining companies have also locked up substantial funds in stocks of tin concentrate and contributions to the Buffer stock: these funds have been drawn from cash reserves built up for future development despite the heavy cost of royalties and taxation.

It is not, therefore, surprising that our own income for the year is substantially lower than the previous year even although it includes dividends from the mining companies partly in respect of their more profitable operations up to March, 1958. An estimate of our income for the year ending March 31, 1960, inevitably indicates a further though modest decline but I am hopeful that when the time comes, and barring any unforeseen adverse developments, it may be possible for us to maintain the dividend of 20 per cent. paid for the year under review.

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The illustration above shows the H/E Tractor Drillmaster during drilling operations in an Open Cast site.

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The illustration on right shows the H/E Tractor Drillmaster during drilling operations in a quarry.

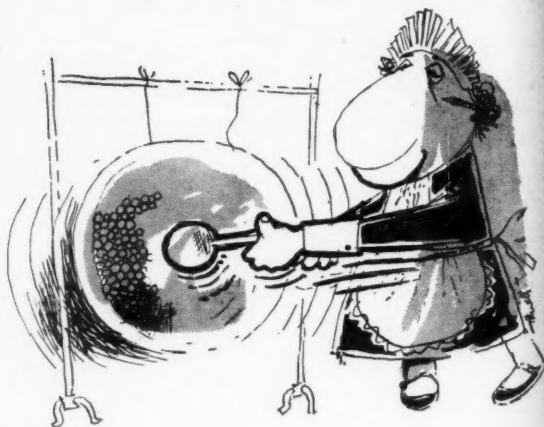
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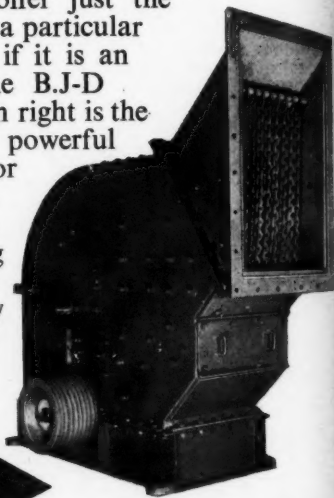
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